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Attorney Docket No: P-LJ 5037

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*Karly Tambara*

Printed Name of Person Mailing Paper or Fee

*K. Tambara*

Signature of Person Mailing Paper or Fee

# SEQUENCE LISTING

<110> Reed, John C.  
 Godzik, Adam  
 Pawlowski, Krzysztof  
 Fiorentino, Loredana  
 Lee, Sug Hyung  
 Roth, Wilfred  
 Stenner-Liewen, Frank

<120> Novel Death Domain Proteins

<130> P-LJ 5037

<150> 60/301,889

<151> 2001-06-29

<150> 09/715,893

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Asp	Trp	His	Gly	Gly	Ala	Ile	Val	Ser	Ala	Leu	Ser	Gln	Thr	Gly	Ser	
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gaa	gga	ttt	gat	gcc	ctg											210
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**THE UNIVERSITY OF CHICAGO**

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 Lys Pro Ser Gly Asp Asp Arg Tyr Asn Gln Phe His Ile Arg Arg Phe  
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 Asp Trp Gly Thr Thr Asn Cys Thr Val Gly Asp Leu Val Asp Leu Leu  
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 Arg Met Phe Glu Val Val Gly Gly Gln Leu Thr Glu Cys Glu Leu Glu  
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 Leu Leu Ala Phe Leu Leu Asp Glu Ala Pro Gly Ala Ala Gly Gly Leu  
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Ala Arg Ala Arg Ser Gly Leu Glu Leu Leu Leu Glu Leu Glu Arg Arg  
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Gly Gln Cys Asp Glu Ser Asn Leu Arg Leu Leu Gly Gln Leu Leu Arg  
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tta gag gct cat gag cct agt gaa gca gca aaa gcg aaa gta gct act 96  
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 Met Met Leu Lys Gly Ile Thr Arg Leu Ile Ser Arg  
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atc cat aag ttg gac cct ggg cgt ttt tta cac atg ggg acc cag gct 157  
 Ile His Lys Leu Asp Pro Gly Arg Phe Leu His Met Gly Thr Gln Ala  
 15 20 25

cgc caa agc att gct gct cac cta gat aac cag gtt cca gtt gag agt 205  
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ccg aga gct att tcc cgc acc aat gag aat gac ccg gcc aag cat ggg 253  
 Pro Arg Ala Ile Ser Arg Thr Asn Glu Asn Asp Pro Ala Lys His Gly  
 45 50 55 60

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Ala	Tyr	Met	Ala	Pro	Glu	Ala	Leu	Arg	Gly	Glu	Ile	Thr	Pro	Lys	Ser
	355						360					365			
Asp	Ile	Tyr	Ser	Phe	Gly	Val	Val	Leu	Leu	Glu	Ile	Ile	Thr	Gly	Leu

370	375	380
Pro Ala Val Asp Glu His Arg Glu Pro Gln Leu Leu Asp Ile Lys		
385	390	395
Glu Glu Ile Glu Asp Glu Glu Lys Thr Ile Glu Asp Tyr Ile Asp Lys		400
	405	410
Lys Met Asn Asp Ala Asp Ser Thr Ser Val Glu Ala Met Tyr Ser Val		415
	420	425
Ala Ser Gln Cys Leu His Glu Lys Lys Asn Lys Arg Pro Asp Ile Lys		430
	435	440
Lys Val Gln Gln Leu Leu Gln Glu Met Thr Ala Ser		445
450	455	460

<210> 17  
 <211> 1924  
 <212> DNA  
 <213> Homo sapien

<220>  
 <221> CDS  
 <222> (91)...(1044)

<221> misc\_feature  
 <222> (1)...(1900)  
 <223> n = A,T,C or G

<400> 17  
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 ctgagcttgt tccgctccc tcccccgga atg gcg cta tcc ggg tgc acc ccg 114  
 Met Ala Leu Ser Gly Ser Thr Pro  
 1 5

gcc ccg tgc tgg gag gag gat gag tgc ctg gac tac tac ggg atg ctg 162  
 Ala Pro Cys Trp Glu Glu Asp Glu Cys Leu Asp Tyr Tyr Gly Met Leu  
 10 15 20

tgc ctt cac cgt atg ttc gag gtg gtg ggc ggg caa ctg acc gag tgc 210  
 Ser Leu His Arg Met Phe Glu Val Val Gly Gly Gln Leu Thr Glu Cys  
 25 30 35 40

gag ctg gag ctc ctg gcc ttt ctg ctg gat gag gct cct ggc gcc gcc 258  
 Glu Leu Glu Leu Leu Ala Phe Leu Leu Asp Glu Ala Pro Gly Ala Ala  
 45 50 55

gga ggc tta gcc cgg gcc cgc agc ggc cta gag ctc ctg ctg gag ctg 306  
 Gly Gly Leu Ala Arg Ala Arg Ser Gly Leu Glu Leu Leu Glu Leu  
 60 65 70

gag cgc cgc ggg cag tgc gac gag agc aac ctg cgg ctg ctg ggg caa 354  
 Glu Arg Arg Gly Gln Cys Asp Glu Ser Asn Leu Arg Leu Leu Gly Gln  
 75 80 85

ctc ctg cgc gtg ctg gcc cgc cac gac ctg ctg ccg cac ctg gcg cgc 402  
 Leu Leu Arg Val Leu Ala Arg His Asp Leu Leu Pro His Leu Ala Arg  
 90 95 100





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aggactggca ggattgatcc cacctccaag tctccgggcc accttctcct gggaggacga 1134
ccatctctac ccctagagga ctgtcactct agcatctttg aggactgcga caggaccggg 1194
acagcaggcc ccttgacagc cctcccccaca ggatgtgggc tctgaggcct aaaccatttc 1254
cagctgagtt tccttcccag actcctccta ccccagggtg gcccattcg cctccggacg 1314
cgggggctgg gcctgtatct cagaagggag gggcacagct acacactcac caaaggcccc 1374
cctgcacatt gtatctctga tcttgggctg tttgactgt cacaggtgca cacactcgct 1434
catgctcaca ctgcccctgc tgagatcttc ctgggcctct gccctggcct gttcccagca 1494
cacacttttt tggcctaagg gcttctttct caggaccttt aatttgacca ccaacccaaa 1554
ctgggggtttc agccaaaatc agtgggcact ggagctgggg tgcacatggg gcctgctcac 1614
cttgcccaca natttccagc cagccagggc cctgcccagc ttcaatttac agacctgact 1674
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ggagtgtcac atgggagtgt tatggcagca tcataccaag gcctactgtt gcacatgggg 1794
ccaaaaccag taaacagcca ccttnttggg aagggaatgc aaaggctttg ggggtgatgg 1854
aaaagacctt ttacaaatga taccaattaa actgccttgg aaagggcata ggtgggcaaa 1914
aaaaaaaaaa 1924

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&lt;210&gt; 18

&lt;211&gt; 318

&lt;212&gt; PRT

&lt;213&gt; Homo sapien

&lt;400&gt; 18

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Met Ala Leu Ser Gly Ser Thr Pro Ala Pro Cys Trp Glu Glu Asp Glu
 1          5          10          15
Cys Leu Asp Tyr Tyr Gly Met Leu Ser Leu His Arg Met Phe Glu Val
 20          25          30
Val Gly Gly Gln Leu Thr Glu Cys Glu Leu Glu Leu Leu Ala Phe Leu
 35          40          45
Leu Asp Glu Ala Pro Gly Ala Ala Gly Gly Leu Ala Arg Ala Arg Ser
 50          55          60
Gly Leu Glu Leu Leu Leu Glu Leu Glu Arg Arg Gly Gln Cys Asp Glu
 65          70          75          80
Ser Asn Leu Arg Leu Leu Gly Gln Leu Leu Arg Val Leu Ala Arg His
 85          90          95
Asp Leu Leu Pro His Leu Ala Arg Lys Arg Arg Arg Pro Val Ser Pro
100          105          110
Glu Arg Tyr Ser Tyr Gly Thr Ser Ser Ser Lys Arg Thr Glu Gly
115          120          125
Ser Cys Arg Arg Arg Arg Gln Ser Ser Ser Ser Ala Asn Ser Gln Gln
130          135          140
Gly Gln Trp Glu Thr Gly Ser Pro Pro Thr Lys Arg Gln Arg Arg Ser
145          150          155          160
Arg Gly Arg Pro Ser Gly Gly Ala Arg Arg Arg Arg Gly Ala Pro
165          170          175
Ala Ala Pro Gln Gln Gln Ser Glu Pro Ala Arg Pro Ser Ser Glu Gly
180          185          190
Lys Val Thr Cys Asp Ile Arg Leu Arg Val Arg Ala Glu Tyr Cys Glu
195          200          205
His Gly Pro Ala Leu Glu Gln Gly Val Ala Ser Arg Arg Pro Gln Ala
210          215          220
Leu Ala Arg Gln Leu Asp Val Phe Gly Gln Ala Thr Ala Val Leu Arg
225          230          235          240
Ser Arg Asp Leu Gly Ser Val Val Cys Asp Ile Lys Phe Ser Glu Leu

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				245					250					255			
Ser	Tyr	Leu	Asp	Ala	Phe	Trp	Gly	Asp	Tyr	Leu	Ser	Gly	Ala	Leu	Leu		
			260					265					270				
Gln	Ala	Leu	Arg	Gly	Val	Phe	Leu	Thr	Glu	Ala	Leu	Arg	Glu	Ala	Val		
		275					280					285					
Gly	Arg	Glu	Ala	Val	Arg	Leu	Leu	Val	Ser	Val	Asp	Glu	Ala	Asp	Tyr		
	290				295					300							
Glu	Ala	Gly	Arg	Arg	Arg	Leu	Leu	Leu	Met	Glu	Glu	Glu	Gly				
305					310					315							

<210> 19

<211> 696

<212> DNA

<213> Chlamydia trachomatis

<220>

<221> CDS

<222> (1)...(693)

<400> 19

atg	atg	gag	gtg	ttt	atg	aat	ttt	tta	gat	cag	tta	gat	tta	att	att	48
Met	Met	Glu	Val	Phe	Met	Asn	Phe	Leu	Asp	Gln	Leu	Asp	Leu	Ile	Ile	
1			5					10					15			

caa	aat	aag	cat	atg	cta	gaa	cac	acg	ttt	tat	gtg	aaa	tgg	tcg	aag	96
Gln	Asn	Lys	His	Met	Leu	Glu	His	Thr	Phe	Tyr	Val	Lys	Trp	Ser	Lys	
		20					25					30				

ggg	gag	ctt	act	aaa	gag	caa	tta	cag	gcg	tat	gcc	aaa	gac	tat	tat	144
Gly	Glu	Leu	Thr	Lys	Glu	Gln	Leu	Gln	Ala	Tyr	Ala	Lys	Asp	Tyr	Tyr	
	35					40					45					

tta	cat	atc	aaa	gcc	ttt	cct	aaa	tat	tta	tct	gcg	att	cat	agt	cgt	192
Leu	His	Ile	Lys	Ala	Phe	Pro	Lys	Tyr	Leu	Ser	Ala	Ile	His	Ser	Arg	
	50				55					60						

tgc	gat	gat	tta	gag	gcg	cgt	aag	tta	ttg	tta	gat	aac	ttg	atg	gat	240
Cys	Asp	Asp	Leu	Glu	Ala	Arg	Lys	Leu	Leu	Leu	Asp	Asn	Leu	Met	Asp	
65				70				75				80				

gaa	gag	aac	ggt	tac	cct	aat	cat	att	gat	ttg	tgg	aag	cag	ttt	gtg	288
Glu	Glu	Asn	Gly	Tyr	Pro	Asn	His	Ile	Asp	Leu	Trp	Lys	Gln	Phe	Val	
		85			90							95				

ttt	gct	cta	gga	gtt	act	cca	gaa	gag	tta	gag	gct	cat	gag	cct	agt	336
Phe	Ala	Leu	Gly	Val	Thr	Pro	Glu	Glu	Leu	Glu	Ala	His	Glu	Pro	Ser	
		100					105					110				

gaa	gca	gca	aaa	gcg	aaa	gta	gct	act	ttc	atg	cgg	tgg	tgt	aca	gga	384
Glu	Ala	Ala	Lys	Ala	Lys	Val	Ala	Thr	Phe	Met	Arg	Trp	Cys	Thr	Gly	
		115				120					125					

gat	tct	tta	gct	gca	gga	gtg	gct	gct	ttg	tat	tct	tat	gag	agt	caa	432
Asp	Ser	Leu	Ala	Ala	Gly	Val	Ala	Ala	Leu	Tyr	Ser	Tyr	Glu	Ser	Gln	

130 135 140 480 528 576 624 672 696

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130      135      140
att cca cgt atc gct aga gag aaa att cgt gga ttg act gag tac ttt 480
Ile Pro Arg Ile Ala Arg Glu Lys Ile Arg Gly Leu Thr Glu Tyr Phe
145      150      155      160

gga ttt tcc aat cct gaa gac tat gca tat ttc aca gaa cat gaa gaa 528
Gly Phe Ser Asn Pro Glu Asp Tyr Ala Tyr Phe Thr Glu His Glu Glu
      165      170      175

gcg gat gtg cgg cat gct aga gaa gaa aaa gcg ctc att gag atg ctt 576
Ala Asp Val Arg His Ala Arg Glu Glu Lys Ala Leu Ile Glu Met Leu
      180      185      190

ctc aaa gat gac gct gat aaa gtg tta gag gca tcg cag gaa gta acg 624
Leu Lys Asp Asp Ala Asp Lys Val Leu Glu Ala Ser Gln Glu Val Thr
      195      200      205

caa tct ttg tat ggc ttt tta gat tct ttt ttg gat cca cga act tgt 672
Gln Ser Leu Tyr Gly Phe Leu Asp Ser Phe Leu Asp Pro Arg Thr Cys
      210      215      220

tgt agt tgt cat caa tct tat taa 696
Cys Ser Cys His Gln Ser Tyr
225      230

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<210> 20  
 <211> 231  
 <212> PRT  
 <213> Chlamydia trachomatis

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<400> 20
Met Met Glu Val Phe Met Asn Phe Leu Asp Gln Leu Asp Leu Ile Ile
1      5      10      15
Gln Asn Lys His Met Leu Glu His Thr Phe Tyr Val Lys Trp Ser Lys
      20      25      30
Gly Glu Leu Thr Lys Glu Gln Leu Gln Ala Tyr Ala Lys Asp Tyr Tyr
      35      40      45
Leu His Ile Lys Ala Phe Pro Lys Tyr Leu Ser Ala Ile His Ser Arg
      50      55      60
Cys Asp Asp Leu Glu Ala Arg Lys Leu Leu Leu Asp Asn Leu Met Asp
65      70      75      80
Glu Glu Asn Gly Tyr Pro Asn His Ile Asp Leu Trp Lys Gln Phe Val
      85      90      95
Phe Ala Leu Gly Val Thr Pro Glu Glu Leu Glu Ala His Glu Pro Ser
      100      105      110
Glu Ala Ala Lys Ala Lys Val Ala Thr Phe Met Arg Trp Cys Thr Gly
      115      120      125
Asp Ser Leu Ala Ala Gly Val Ala Ala Leu Tyr Ser Tyr Glu Ser Gln
      130      135      140
Ile Pro Arg Ile Ala Arg Glu Lys Ile Arg Gly Leu Thr Glu Tyr Phe
145      150      155      160
Gly Phe Ser Asn Pro Glu Asp Tyr Ala Tyr Phe Thr Glu His Glu Glu
      165      170      175

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Ala Asp Val Arg His Ala Arg Glu Glu Lys Ala Leu Ile Glu Met Leu  
180 185 190  
Leu Lys Asp Asp Ala Asp Lys Val Leu Glu Ala Ser Gln Glu Val Thr  
195 200 205  
Gln Ser Leu Tyr Gly Phe Leu Asp Ser Phe Leu Asp Pro Arg Thr Cys  
210 215 220  
Cys Ser Cys His Gln Ser Tyr  
225 230

<210> 21  
<211> 687  
<212> DNA  
<213> Mus musculus

<220>  
<221> CDS  
<222> (1)...(684)

<400> 21  
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Met Leu Tyr Asn Val Ser Lys Gly Val Val Tyr Ser Asp Thr Ala Leu  
1 5 10 15  
cag ggg cag gac ggg gac agg gaa gga atg tgg gta gga gct ggg gga 96  
Gln Gly Gln Asp Gly Asp Arg Glu Gly Met Trp Val Gly Ala Gly Gly  
20 25 30  
gcc cta gcc ccc aat acc tcc tcc cta ttt ccc cct gag cct cca ggg 144  
Ala Leu Ala Pro Asn Thr Ser Ser Leu Phe Pro Pro Glu Pro Pro Gly  
35 40 45  
gcc tcg agc aac atc att cct gtc tac tgt gct ctc cta gct aca gtg 192  
Ala Ser Ser Asn Ile Ile Pro Val Tyr Cys Ala Leu Leu Ala Thr Val  
50 55 60  
atc ctt ggt ctg ctg gcc tat gtg gcc ttc aaa tgc tgg cgc tca cat 240  
Ile Leu Gly Leu Leu Ala Tyr Val Ala Phe Lys Cys Trp Arg Ser His  
65 70 75 80  
aag caa agg caa cag ttg gct aaa gct cgg act gta gag cta ggg gac 288  
Lys Gln Arg Gln Gln Leu Ala Lys Ala Arg Thr Val Glu Leu Gly Asp  
85 90 95  
cct gac agg gac cag agg cgt ggt gac agc aac gtc ttc gtg gac tct 336  
Pro Asp Arg Asp Gln Arg Arg Gly Asp Ser Asn Val Phe Val Asp Ser  
100 105 110  
cct cct agt ctg gag ccc tgt att ccc agc cag gga cca cac ccg gac 384  
Pro Pro Ser Leu Glu Pro Cys Ile Pro Ser Gln Gly Pro His Pro Asp  
115 120 125  
ctt ggc tgc cag ctt tac ctg cat att cca cag cag cag cag gag gaa 432  
Leu Gly Cys Gln Leu Tyr Leu His Ile Pro Gln Gln Gln Gln Glu Glu  
130 135 140

gtc cag cgg ctc ctg atg atg ggt gag cca gcc aag ggc tgg cag gag 480  
Val Gln Arg Leu Leu Met Met Gly Glu Pro Ala Lys Gly Trp Gln Glu  
145 150 155 160

ctg gca ggc cac ctc ggc tac caa gct gag gct gtg gaa acc atg gcc 528  
Leu Ala Gly His Leu Gly Tyr Gln Ala Glu Ala Val Glu Thr Met Ala  
165 170 175

tgt gac caa atg cca gcc tat acc ctg cta agg aac tgg gct gcc caa 576  
Cys Asp Gln Met Pro Ala Tyr Thr Leu Leu Arg Asn Trp Ala Ala Gln  
180 185 190

gaa ggc aat aga gct acc ctc aga gtg ctg gag gat gct ctg gct gcc 624  
Glu Gly Asn Arg Ala Thr Leu Arg Val Leu Glu Asp Ala Leu Ala Ala  
195 200 205

ata ggc cga gaa gat gtg gtc cag gtt ttg agc tcg cca gct gag agc 672  
Ile Gly Arg Glu Asp Val Val Gln Val Leu Ser Ser Pro Ala Glu Ser  
210 215 220

tcc tcg gtg gtg tga 687  
Ser Ser Val Val  
225

<210> 22  
<211> 228  
<212> PRT  
<213> Mus musculus

<400> 22  
Met Leu Tyr Asn Val Ser Lys Gly Val Val Tyr Ser Asp Thr Ala Leu  
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Gln Gly Gln Asp Gly Asp Arg Glu Gly Met Trp Val Gly Ala Gly Gly  
20 25 30  
Ala Leu Ala Pro Asn Thr Ser Ser Leu Phe Pro Pro Glu Pro Pro Gly  
35 40 45  
Ala Ser Ser Asn Ile Ile Pro Val Tyr Cys Ala Leu Leu Ala Thr Val  
50 55 60  
Ile Leu Gly Leu Leu Ala Tyr Val Ala Phe Lys Cys Trp Arg Ser His  
65 70 75 80  
Lys Gln Arg Gln Gln Leu Ala Lys Ala Arg Thr Val Glu Leu Gly Asp  
85 90 95  
Pro Asp Arg Asp Gln Arg Arg Gly Asp Ser Asn Val Phe Val Asp Ser  
100 105 110  
Pro Pro Ser Leu Glu Pro Cys Ile Pro Ser Gln Gly Pro His Pro Asp  
115 120 125  
Leu Gly Cys Gln Leu Tyr Leu His Ile Pro Gln Gln Gln Glu Glu  
130 135 140  
Val Gln Arg Leu Leu Met Met Gly Glu Pro Ala Lys Gly Trp Gln Glu  
145 150 155 160  
Leu Ala Gly His Leu Gly Tyr Gln Ala Glu Ala Val Glu Thr Met Ala  
165 170 175  
Cys Asp Gln Met Pro Ala Tyr Thr Leu Leu Arg Asn Trp Ala Ala Gln



att cca cgt atc gct aga gag aaa att cgt gga ttg act gag tac ttt	480
Ile Pro Arg Ile Ala Arg Glu Lys Ile Arg Gly Leu Thr Glu Tyr Phe	
145 150 155 160	
gga ttt tcc aat cct gaa gac tat gca tat ttc aca gaa cat gaa gaa	528
Gly Phe Ser Asn Pro Glu Asp Tyr Ala Tyr Phe Thr Glu His Glu Glu	
165 170 175	
gcg gat gtg cgg cat gct aga gaa gaa aaa gcg ctc att gag atg ctt	576
Ala Asp Val Arg His Ala Arg Glu Glu Lys Ala Leu Ile Glu Met Leu	
180 185 190	
ctc aaa gat gac gct gat aaa gtg tta gag gca tcg caa gaa gta acg	624
Leu Lys Asp Asp Ala Asp Lys Val Leu Glu Ala Ser Gln Glu Val Thr	
195 200 205	
caa tct ttg tat ggc ttt tta gat tct ttt ttg gat cca gga act tgt	672
Gln Ser Leu Tyr Gly Phe Leu Asp Ser Phe Leu Asp Pro Gly Thr Cys	
210 215 220	
tgt agt tgt cat caa tct tat taa	696
Cys Ser Cys His Gln Ser Tyr	
225 230	

<210> 24  
 <211> 231  
 <212> PRT  
 <213> Chlamydia trachomatis

<400> 24

Met Met Glu Val Phe Met Asn Phe Leu Asp Gln Leu Asp Leu Ile Ile	
1 5 10 15	
Gln Asn Lys His Met Leu Glu His Thr Phe Tyr Val Lys Trp Ser Lys	
20 25 30	
Gly Glu Leu Thr Lys Glu Gln Leu Gln Ala Tyr Ala Lys Asp Tyr Tyr	
35 40 45	
Leu His Ile Lys Ala Phe Pro Lys Tyr Leu Ser Ala Ile His Ser Arg	
50 55 60	
Cys Asp Asp Leu Glu Ala Arg Lys Leu Leu Leu Asp Asn Leu Met Asp	
65 70 75 80	
Glu Glu Asn Gly Tyr Pro Asn His Ile Asp Leu Trp Lys Gln Phe Val	
85 90 95	
Phe Ala Leu Gly Val Thr Pro Glu Glu Glu Ala His Glu Pro Ser	
100 105 110	
Glu Ala Ala Lys Ala Lys Val Ala Thr Phe Met Arg Trp Cys Thr Gly	
115 120 125	
Asp Ser Leu Ala Ala Gly Val Ala Ala Leu Tyr Ser Tyr Glu Ser Gln	
130 135 140	
Ile Pro Arg Ile Ala Arg Glu Lys Ile Arg Gly Leu Thr Glu Tyr Phe	
145 150 155 160	
Gly Phe Ser Asn Pro Glu Asp Tyr Ala Tyr Phe Thr Glu His Glu Glu	
165 170 175	
Ala Asp Val Arg His Ala Arg Glu Glu Lys Ala Leu Ile Glu Met Leu	
180 185 190	

Leu Lys Asp Asp Ala Asp Lys Val Leu Glu Ala Ser Gln Glu Val Thr  
 195 200 205  
 Gln Ser Leu Tyr Gly Phe Leu Asp Ser Phe Leu Asp Pro Gly Thr Cys  
 210 215 220  
 Cys Ser Cys His Gln Ser Tyr  
 225 230

<210> 25  
 <211> 211  
 <212> DNA  
 <213> Homo sapien

<220>  
 <221> CDS  
 <222> (1)...(177)

<400> 25  
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 Met Asn Lys Pro Ile Thr Pro Ser Thr Tyr Val Arg Cys Leu Asn Val  
 1 5 10 15  
 gga cta att agg aag ctg tca gat ttt att gat cct caa gaa gga tgg 96  
 Gly Leu Ile Arg Lys Leu Ser Asp Phe Ile Asp Pro Gln Glu Gly Trp  
 20 25 30  
 aag aag tta gct gta gct att aaa aaa cca tct ggt gat gat aga tac 144  
 Lys Lys Leu Ala Val Ala Ile Lys Lys Pro Ser Gly Asp Asp Arg Tyr  
 35 40 45  
 aat cag ttt cac ata aga tgc tgt tcc caa aac taatacacta ccttctaaag 197  
 Asn Gln Phe His Ile Arg Cys Cys Ser Gln Asn  
 50 55  
 aagctataac agtt 211

<210> 26  
 <211> 59  
 <212> PRT  
 <213> Homo sapien

<400> 26  
 Met Asn Lys Pro Ile Thr Pro Ser Thr Tyr Val Arg Cys Leu Asn Val  
 1 5 10 15  
 Gly Leu Ile Arg Lys Leu Ser Asp Phe Ile Asp Pro Gln Glu Gly Trp  
 20 25 30  
 Lys Lys Leu Ala Val Ala Ile Lys Lys Pro Ser Gly Asp Asp Arg Tyr  
 35 40 45  
 Asn Gln Phe His Ile Arg Cys Cys Ser Gln Asn  
 50 55

<210> 27  
 <211> 2817  
 <212> DNA



<213> Homo sapien

<220>

<221> CDS

<222> (50)...(1429)

<400> 27

gtttcttctgt cgccggcttc agcagcccg c gccgggcag gaatagaag atg aac aaa 58

Met Asn Lys

1

ccc ata aca cca tca aca tat gtg cgc tgc ctc aat gtt gga cta att 106

Pro Ile Thr Pro Ser Thr Tyr Val Arg Cys Leu Asn Val Gly Leu Ile

5

10

15

agg aag ctg tca gat ttt att gat cct caa gaa gga tgg aag aag tta 154

Arg Lys Leu Ser Asp Phe Ile Asp Pro Gln Glu Gly Trp Lys Lys Leu

20

25

30

35

gct gta gct att aaa aaa cca tct ggt gat gat aga tac aat cag ttt 202

Ala Val Ala Ile Lys Lys Pro Ser Gly Asp Asp Arg Tyr Asn Gln Phe

40

45

50

cac ata agg aga ttt gaa gca tta ctt caa act gga aaa agt ccc act 250

His Ile Arg Arg Phe Glu Ala Leu Leu Gln Thr Gly Lys Ser Pro Thr

55

60

65

tct gaa tta ctg ttt gac tgg ggc acc aca aat tgc aca gtt ggt gat 298

Ser Glu Leu Leu Phe Asp Trp Gly Thr Thr Asn Cys Thr Val Gly Asp

70

75

80

ctt gtg gat ctt ttg atc caa aat gaa ttt ttt gct cct gcg agt ctt 346

Leu Val Asp Leu Leu Ile Gln Asn Glu Phe Phe Ala Pro Ala Ser Leu

85

90

95

ttg ctc cca gat gct gtt ccc aaa act gct aat aca cta cct tct aaa 394

Leu Leu Pro Asp Ala Val Pro Lys Thr Ala Asn Thr Leu Pro Ser Lys

100

105

110

115

gaa gct ata aca gtt cag caa aaa cag atg cct ttc tgt gac aaa gac 442

Glu Ala Ile Thr Val Gln Gln Lys Gln Met Pro Phe Cys Asp Lys Asp

120

125

130

agg aca ttg atg aca cct gtg cag aat ctt gaa caa agc tat atg cca 490

Arg Thr Leu Met Thr Pro Val Gln Asn Leu Glu Gln Ser Tyr Met Pro

135

140

145

cct gac tcc tca agt cca gaa aat aaa agt tta gaa gtt agt gat aca 538

Pro Asp Ser Ser Ser Pro Glu Asn Lys Ser Leu Glu Val Ser Asp Thr

150

155

160

cgt ttt cac agt ttt tca ttt tat gaa ttg aag aat gtc aca aat aac 586

Arg Phe His Ser Phe Ser Phe Tyr Glu Leu Lys Asn Val Thr Asn Asn

165

170

175





Ser Pro Thr Ser Glu Leu Leu Phe Asp Trp Gly Thr Thr Asn Cys Thr  
65 70 75 80  
Val Gly Asp Leu Val Asp Leu Leu Ile Gln Asn Glu Phe Phe Ala Pro  
85 90 95  
Ala Ser Leu Leu Leu Pro Asp Ala Val Pro Lys Thr Ala Asn Thr Leu  
100 105 110  
Pro Ser Lys Glu Ala Ile Thr Val Gln Gln Lys Gln Met Pro Phe Cys  
115 120 125  
Asp Lys Asp Arg Thr Leu Met Thr Pro Val Gln Asn Leu Glu Gln Ser  
130 135 140  
Tyr Met Pro Pro Asp Ser Ser Ser Pro Glu Asn Lys Ser Leu Glu Val  
145 150 155 160  
Ser Asp Thr Arg Phe His Ser Phe Ser Phe Tyr Glu Leu Lys Asn Val  
165 170 175  
Thr Asn Asn Phe Asp Glu Arg Pro Ile Ser Val Gly Gly Asn Lys Met  
180 185 190  
Gly Glu Gly Gly Phe Gly Val Val Tyr Lys Gly Tyr Val Asn Asn Thr  
195 200 205  
Thr Val Ala Val Lys Lys Leu Ala Ala Met Val Asp Ile Thr Thr Glu  
210 215 220  
Glu Leu Lys Gln Gln Phe Asp Gln Glu Ile Lys Val Met Ala Lys Cys  
225 230 235 240  
Gln His Glu Asn Leu Val Glu Leu Leu Gly Phe Ser Ser Asp Gly Asp  
245 250 255  
Asp Leu Cys Leu Val Tyr Val Tyr Met Pro Asn Gly Ser Leu Leu Asp  
260 265 270  
Arg Leu Ser Cys Leu Asp Gly Thr Pro Pro Leu Ser Trp His Met Arg  
275 280 285  
Cys Lys Ile Ala Gln Gly Ala Ala Asn Gly Ile Asn Phe Leu His Glu  
290 295 300  
Asn His His Ile His Arg Asp Ile Lys Ser Ala Asn Ile Leu Leu Asp  
305 310 315 320  
Glu Ala Phe Thr Ala Lys Ile Ser Asp Phe Gly Leu Ala Arg Ala Ser  
325 330 335  
Glu Lys Phe Ala Gln Thr Val Met Thr Ser Arg Ile Val Gly Thr Thr  
340 345 350  
Ala Tyr Met Ala Pro Glu Ala Leu Arg Gly Glu Ile Thr Pro Lys Ser  
355 360 365  
Asp Ile Tyr Ser Phe Gly Val Val Leu Leu Glu Ile Ile Thr Gly Leu  
370 375 380  
Pro Ala Val Asp Glu His Arg Glu Pro Gln Leu Leu Leu Asp Ile Lys  
385 390 395 400  
Glu Glu Ile Glu Asp Glu Glu Lys Thr Ile Glu Asp Tyr Ile Asp Lys  
405 410 415  
Lys Met Asn Asp Ala Asp Ser Thr Ser Val Glu Ala Met Tyr Ser Gly  
420 425 430  
Ala Ser Gln Cys Arg His Glu Lys Lys Asn Lys Ser Pro Asp Ile Lys  
435 440 445  
Lys Val His Gln Leu Leu Gln Glu Met Thr Ala Ser  
450 455 460

<210> 29  
<211> 142  
<212> PRT

<213> Homo sapien

<400> 29

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Lys Leu Lys Gly Glu Pro Gly Trp Val Thr Ile His Gly Met Ala Gly
 1          5          10          15
Cys Gly Lys Ser Val Leu Ala Ala Glu Ala Val Arg Asp His Ser Leu
 20          25          30
Leu Glu Gly Cys Phe Pro Gly Gly Val His Trp Val Ser Val Gly Lys
 35          40          45
Gln Asp Lys Ser Gly Leu Leu Met Lys Leu Gln Asn Leu Cys Thr Arg
 50          55          60
Leu Asp Gln Asp Glu Ser Phe Ser Gln Arg Leu Pro Leu Asn Ile Glu
 65          70          75          80
Glu Ala Lys Asp Arg Leu Arg Ile Leu Met Leu Arg Lys His Pro Arg
 85          90          95
Ser Leu Leu Ile Leu Asp Asp Val Trp Asp Ser Trp Val Leu Lys Ala
100          105          110
Phe Asp Ser Gln Cys Gln Ile Leu Leu Thr Thr Arg Asp Lys Ser Val
115          120          125
Thr Asp Ser Val Met Gly Pro Lys Tyr Val Val Pro Val Glu
130          135          140
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<210> 30

<211> 145

<212> PRT

<213> C. elegans

<400> 30

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Glu Met Cys Asp Leu Asp Ser Phe Phe Leu Phe Leu His Gly Arg Ala
 1          5          10          15
Gly Ser Gly Lys Ser Val Ile Ala Ser Gln Ala Leu Ser Lys Ser Asp
 20          25          30
Gln Leu Ile Gly Ile Asn Tyr Asp Ser Ile Val Trp Leu Lys Asp Ser
 35          40          45
Gly Thr Ala Pro Lys Ser Thr Phe Asp Leu Phe Thr Asp Ile Leu Leu
 50          55          60
Met Leu Lys Ser Glu Asp Asp Leu Leu Asn Phe Pro Ser Val Glu His
 65          70          75          80
Val Thr Ser Val Val Leu Lys Arg Met Ile Cys Asn Ala Leu Ile Asp
 85          90          95
Arg Pro Asn Thr Leu Phe Val Phe Asp Asp Val Val Gln Glu Glu Thr
100          105          110
Ile Arg Trp Ala Gln Glu Leu Arg Leu Arg Cys Leu Val Thr Thr Arg
115          120          125
Asp Val Glu Ile Ser Asn Ala Ala Ser Gln Thr Cys Glu Phe Ile Glu
130          135          140
Val
145
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<210> 31

<211> 75

<212> PRT

<213> Homo sapien

<400> 31

Met	Asp	Phe	Ser	Arg	Asn	Leu	Tyr	Asp	Ile	Gly	Glu	Gln	Leu	Asp	Ser
1				5					10					15	
Glu	Asp	Leu	Ala	Ser	Leu	Lys	Phe	Leu	Ser	Leu	Asp	Tyr	Ile	Pro	Gln
		20						25					30		
Arg	Lys	Gln	Glu	Pro	Ile	Lys	Asp	Ala	Leu	Met	Leu	Phe	Gln	Arg	Leu
		35					40					45			
Gln	Glu	Lys	Arg	Met	Leu	Glu	Glu	Ser	Asn	Leu	Ser	Phe	Leu	Lys	Glu
	50					55					60				
Leu	Leu	Phe	Arg	Ile	Asn	Arg	Leu	Asp	Leu	Leu					
65					70					75					

<210> 32

<211> 76

<212> PRT

<213> Homo sapien

<400> 32

His	Leu	Leu	Ile	Arg	Val	Met	Leu	Tyr	Gln	Ile	Ser	Glu	Glu	Val	Ser
1				5					10					15	
Arg	Ser	Glu	Leu	Arg	Ser	Phe	Lys	Phe	Leu	Leu	Gln	Glu	Glu	Ile	Ser
		20						25					30		
Lys	Cys	Lys	Leu	Asp	Asp	Asp	Met	Asn	Leu	Leu	Asp	Ile	Phe	Ile	Glu
		35					40					45			
Met	Glu	Lys	Arg	Val	Ile	Leu	Gly	Glu	Gly	Lys	Leu	Asp	Ile	Leu	Lys
	50					55					60				
Arg	Val	Cys	Ala	Gln	Ile	Asn	Lys	Ser	Leu	Leu	Lys				
65					70					75					

<210> 33

<211> 77

<212> PRT

<213> Homo sapien

<400> 33

Lys	Val	Ser	Phe	Arg	Glu	Lys	Leu	Leu	Ile	Ile	Asp	Ser	Asn	Leu	Gly
1				5					10					15	
Val	Gln	Asp	Val	Glu	Asn	Leu	Lys	Phe	Leu	Cys	Ile	Gly	Leu	Val	Pro
		20						25					30		
Asn	Lys	Lys	Leu	Glu	Lys	Ser	Ser	Ala	Ser	Asp	Val	Phe	Glu	His	
		35					40				45				
Leu	Leu	Ala	Glu	Asp	Leu	Leu	Ser	Glu	Glu	Asp	Pro	Phe	Phe	Leu	Ala
	50					55					60				
Glu	Leu	Leu	Tyr	Ile	Ile	Arg	Gln	Lys	Lys	Leu	Leu	Gln			
65					70					75					

<210> 34

<211> 72

<212> PRT

<213> Homo sapien

<400> 34

Val Ser Leu Phe Arg Asn Leu Leu Tyr Glu Leu Ser Glu Gly Ile Asp  
1 5 10 15  
Ser Glu Asn Leu Lys Asp Met Ile Phe Leu Leu Lys Asp Ser Leu Pro  
20 25 30  
Lys Thr Glu Met Thr Ser Leu Ser Phe Leu Ala Phe Leu Glu Lys Gln  
35 40 45  
Gly Lys Ile Asp Glu Asp Asn Leu Thr Cys Leu Glu Asp Leu Cys Lys  
50 55 60  
Thr Val Val Pro Lys Leu Leu Arg  
65 70

<210> 35

<211> 77

<212> PRT

<213> Homo sapien

<400> 35

Met Asp Pro Phe Leu Val Leu Leu His Ser Val Ser Ser Ser Leu Ser  
1 5 10 15  
Ser Ser Glu Leu Thr Glu Leu Lys Phe Leu Cys Leu Gly Arg Val Gly  
20 25 30  
Lys Arg Lys Leu Glu Arg Val Gln Ser Gly Leu Asp Leu Phe Ser Met  
35 40 45  
Leu Leu Glu Gln Asn Asp Leu Glu Pro Gly His Thr Glu Leu Leu Arg  
50 55 60  
Glu Leu Leu Ala Ser Leu Arg Arg His Asp Leu Leu Arg  
65 70 75

<210> 36

<211> 99

<212> PRT

<213> Homo sapien

<400> 36

Trp Pro Glu Glu His Gly Glu Gln Glu His Gly Leu Tyr Ser Leu His  
1 5 10 15  
Arg Met Phe Asp Ile Val Gly Thr His Leu Thr His Arg Asp Val Arg  
20 25 30  
Val Leu Ser Phe Leu Phe Val Asp Val Ile Asp His Glu Arg Gly Leu  
35 40 45  
Ile Arg Asn Gly Arg Asp Phe Leu Leu Ala Leu Glu Arg Gln Gly Arg  
50 55 60  
Cys Asp Glu Ser Asn Phe Arg Gln Val Leu Gln Leu Leu Arg Ile Ile  
65 70 75 80  
Thr Arg His Asp Leu Leu Pro Tyr Val Thr Leu Lys Arg Arg Arg Ala  
85 90 95  
Val Cys Pro

<210> 37

<211> 99

<212> PRT  
 <213> Mus musculus

<400> 37  
 Trp Pro Glu Glu Arg Gly Glu Gln Glu His Gly Leu Tyr Ser Leu His  
 1 5 10 15  
 Arg Met Phe Asp Ile Val Gly Thr His Leu Thr His Arg Asp Val Arg  
 20 25 30  
 Val Leu Ser Phe Leu Phe Val Asp Val Ile Asp His Glu Arg Gly Leu  
 35 40 45  
 Ile Arg Asn Gly Arg Asp Phe Leu Leu Ala Leu Glu Arg Gln Gly Arg  
 50 55 60  
 Cys Asp Glu Ser Asn Phe Arg Gln Val Leu Gln Leu Leu Arg Ile Ile  
 65 70 75 80  
 Thr Arg His Asp Leu Leu Pro Tyr Val Thr Leu Lys Lys Arg Arg Ala  
 85 90 95  
 Val Cys Pro

<210> 38  
 <211> 146  
 <212> PRT  
 <213> Danio rerio

<400> 38  
 Trp Glu Glu Thr Glu Cys Leu Ser Tyr Tyr Glu Thr Leu Ser Leu His  
 1 5 10 15  
 Glu Ile Phe Glu Ile Val Gly Ser Gln Leu Thr Glu Thr Cys Gly Gly  
 20 25 30  
 Glu Val Ala Phe Leu Leu Asp Glu Thr Tyr Pro Gly Lys His Pro Leu  
 35 40 45  
 Asp Pro Glu Gly Trp Thr Glu Asp Leu Pro Pro Gly Pro Asp Gly Ser  
 50 55 60  
 Pro Gln Ala Asn Thr Pro Cys Pro Arg Leu Leu Lys Ser Trp Gln Arg  
 65 70 75 80  
 Met Gln Pro Gln Lys Glu Gly Cys Ser Ile Ala Ser Arg His Arg Pro  
 85 90 95  
 Lys Ser Gly Val Glu Leu Leu Leu Glu Leu Glu Arg Arg Gly Tyr Leu  
 100 105 110  
 Ser Asp Ala Asn Leu Arg Pro Leu Leu Gln Leu Leu Arg Ile Leu Thr  
 115 120 125  
 Arg His Asp Val Leu Pro Phe Val Ser Gln Lys Lys Arg Arg Thr Val  
 130 135 140  
 Ser Pro  
 145

<210> 39  
 <211> 82  
 <212> PRT  
 <213> Homo sapien

<400> 39  
 Met Asp Pro Phe Leu Val Leu Leu His Ser Val Ser Ser Ser Leu Ser



1	5	10	15
Ser Ser Glu Leu Thr Glu Leu Lys Tyr Leu Cys Leu Gly Arg Lys Arg			
	20	25	30
Lys Leu Glu Arg Val Gln Ser Gly Leu Asp Leu Phe Ser Met Leu Leu			
	35	40	45
Glu Gln Asn Asp Leu Glu Pro Gly His Thr Glu Leu Leu Arg Glu Leu			
	50	55	60
Leu Ala Ser Leu Arg Arg His Asp Leu Leu Arg Arg Val Asp Asp Phe			
65	70	75	80
Glu Leu			

<210> 40  
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<220>  
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<400> 40  
 atgatgctga aaggaata 18

<210> 41  
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<220>  
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<210> 42  
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<220>  
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<400> 42  
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<210> 43  
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<220>  
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<400> 43

gcctcgagtt aagaagctgt catctcttgc agcag	35
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ctccgccgcc gtctgg	16
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<400> 47	
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<400> 48	

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ccgaggtggc ctgccagctc ctg                                     23

<210> 49
<211> 28
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<220>
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<400> 49
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<210> 50
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic primer

<400> 50
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<210> 51
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<212> DNA
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<220>
<223> synthetic primer

<400> 51
tcacaccacc gaggagctct c                                   21

<210> 52
<211> 195
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  1          5          10          15

cta gaa gct cat gaa ccc agt gaa gca gct aaa gct aag gtt gcg aca   96
Leu Glu Ala His Glu Pro Ser Glu Ala Ala Lys Ala Lys Val Ala Thr
    20          25          30

ttt atg cgg tgg tgc aca ggg gat tct tta gca gca gga gta gcg gct   144
Phe Met Arg Trp Cys Thr Gly Asp Ser Leu Ala Ala Gly Val Ala Ala

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tct Ser 65	gct Ala	att Ile	cat His	agc Ser	cgt Arg 70	tgt Cys	gat Asp	gat Asp	tta Leu	gaa Glu 75	gcc Ala	cgc Arg	aag Lys	tta Leu 80	tta Leu	240
tta Leu	gat Asp	aac Asn	tta Leu	atg Met 85	gat Asp	gaa Glu	gag Glu	aat Asn	ggc Gly 90	tat Tyr	cct Pro	aat Asn	cat His	att Ile 95	gat Asp	288
tta Leu	tgg Trp	aaa Lys	caa Gln 100	ttt Phe	gtg Val	ttt Phe	gct Ala	ctt Leu 105	gga Gly	gtg Val	tct Ser	tca Ser	gaa Glu 110	gag Glu	cta Leu	336
gaa Glu	gct Ala	cat His 115	gaa Glu	ccc Pro	agt Ser	gaa Glu	gca Ala 120	gct Ala	aaa Lys	gct Ala	aag Lys	gtt Val 125	gcg Ala	aca Thr	ttt Phe	384
atg Met	cgg Arg 130	tgg Trp	tgc Cys	aca Thr	ggg Gly	gat Asp	tct Ser	tta Leu	gca Ala	gca Ala	gga Gly 140	gta Val	gcg Ala	gct Ala	ttg Leu	432
tat Tyr 145	tct Ser	tat Tyr	gaa Glu	agt Ser	caa Gln 150	att Ile	cct Pro	tgc Cys	gta Val	gct Ala 155	aaa Lys	gaa Glu	aaa Lys	att Ile	cgt Arg 160	480
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ttc Phe	acg Thr	gag Glu 180	cat His	gaa Glu	gaa Glu	gct Ala	gat Asp	gtg Val 185	cgt Arg	cat His	gct Ala	agg Arg	gaa Glu 190	gaa Glu	aag Lys	576
gcc Ala	tta Leu 195	att Ile	gag Glu	atg Met	ttg Leu	tct Ser	aga Arg	gat Asp 200	gat Asp	agc Ser	gac Asp	aaa Lys 205	gtt Val	tta Leu	gaa Glu	624
gct Ala	tcg Ser 210	cga Arg	gaa Glu	gtt Val	aca Thr	caa Gln 215	tct Ser	tta Leu	tac Tyr	ggc Gly 220	ttt Phe	ttg Leu	gat Asp	tca Ser	ttt Phe	672
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<220>  
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<210> 61  
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<400> 61  
tgatatcgcc gcgctcgtcg tc 22

<210> 62  
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<400> 62  
ggatggcatg ggggagggca ta 22